

EXHIBIT 2:

Indiana Forest Alliance's Draft SIR Comments (Nov. 7, 2022)



November 7, 2022

Christopher R. Thornton, District Ranger, US Forest Service
Attn: Houston South Draft SIR
Hoosier National Forest Supervisor's Office
811 Constitution Avenue
Bedford, IN 47421

Dear Chris:

These Draft Supplemental Information Report (“SIR”) comments are submitted on behalf of the Indiana Forest Alliance (“IFA”) and its members. We also understand that representatives of Monroe County are writing in endorsement of these comments which they have reviewed. Because of the unduly short comment period of only thirty days, we have summarized our most serious concerns below; however, had the public been provided more time to comment on this highly significant action, IFA would have provided substantially more detailed comments, citations to additional scientific resources, and independent expert analysis of the United States Forest Service’s (“USFS”) conclusions and analysis. Nevertheless, the summary below makes clear that the USFS has failed to take the legally required hard look at the impacts of the Houston South Project, failed to consider feasible alternatives that would have less damaging environmental impacts (including to Lake Monroe), and acted arbitrarily and unlawfully in determining that the Project will result in no significant impact and thus does not require an Environmental Impact Statement (“EIS”). For these reasons, the Draft SIR compounds the errors already committed by the USFS in its Environmental Assessment (“EA”) for this Project, and remains inconsistent with the National Environmental Policy Act (“NEPA”) and the Administrative Procedure Act (“APA”).

Before turning to its summary of concerns, IFA points out that the USFS will have acted arbitrarily and capriciously in three other respects if it finalizes the Draft SIR in its current form. First, the USFS states that it will only consider matters pertaining to Lake Monroe in this SIR, thus divorcing the devastating impacts to Lake Monroe resulting from this Project from the additional, serious impacts to other resources stemming from this Project that were analyzed in the previous EA. By segmenting its analysis in this manner—yet reaffirming its view that the Project *as a whole* will not cause significant impacts and therefore does not warrant preparation of an EIS—the USFS violated the spirit and letter of NEPA and its implementing regulations.

Second, this major legal error is exacerbated by the fact that the USFS, in effect, reopened the decision-making process for this Project by considering *new* information and materials regarding potential impacts to Lake Monroe, but at the same time refused to consider any new information or materials bearing on *other* Project-related issues, impacts, or alternatives

outside of the narrowly circumscribed matter of Lake Monroe—such an approach violates basic principles of fairness, common sense, and law under NEPA and the APA.

Third, the USFS stated its view that “the Houston South Project may resume following completion of the final SIR as long as there is no change in effects warranting a correction, supplement, or revision to the 2019 environmental assessment.” Forest Serv., *Forest Service Releases Supplemental Information Report* (Oct. 6, 2022), <https://www.fs.usda.gov/detail/hoosier/news-events/?cid=FSEPRD1065362>. IFA does not agree with this view; immediately proceeding with implementation of an environmentally harmful Project that a federal court has invalidated as unlawful without allowing the court any opportunity to first review the agency’s new attempt to comply with the law is itself arbitrary, capricious, and contrary to NEPA’s look-before-you-leap framework. Moreover, because the USFS already agreed not to commence implementation of the Project unless or until the U.S. District Court for the Southern District of Indiana determined that the agency had complied with NEPA and its implementing regulations, the USFS’s new position that it may throw caution to the wind and bypass the court’s determination of the Project’s legal validity is arbitrary and capricious. Put simply, the importance of this Project warrants careful consideration by the court to determine whether the USFS has, in fact, complied with the court’s order finding a serious legal violation and remanding to the agency for further proceedings. If the agency nevertheless insists on proceeding immediately with implementation, IFA will be forced to consider the use of all available options—including emergency injunctive relief—to maintain the status quo until the court can review the agency’s actions to determine their consistency with federal law.

Below are IFA’s summary of comments on the USFS’s Draft SIR for the Houston South Project:

- 1) The USFS’s reasoning in the Draft SIR that sediment and nutrient runoff from the logging, burning and roadbuilding in the Houston South Project is too far from Lake Monroe to negatively affect the Lake defies basic science. The runoff from logging and burning at Houston South on highly erodible slopes that drain into tributaries of the South Fork of Salt Creek will indisputably increase the sediment and nutrient load in the South Fork of Salt Creek, even if only incrementally during the ten-year plus lifespan of this Project. Just as midwestern farmers are responsible for contributing to the hypoxia in waters of the Gulf of Mexico many hundreds if not thousands of miles away from their operations,¹ the polluted runoff from the management activities in the Houston South Project will necessarily increase the pollutant load reaching Lake Monroe, thereby further degrading water quality and contaminating the sole drinking water source for more than 120,000 Indiana residents. There is no scientific basis to assume that sediment and nutrients such as nitrogen and phosphorus in runoff from the logging and burning authorized in the Houston South Project will settle out of the water column in the South Fork of Salt Creek in the few miles before it reaches Lake Monroe. Any such assumption cuts against the best available scientific evidence on erosion, sedimentation, and hydrology.

¹ <https://www.nature.com/articles/s43247-020-00020-7>

Indeed, the statement in the Draft SIR on page 21 that “eroding trails, roads and undersized culverts are contributing sediment to the South Fork watershed, and ultimately Lake Monroe, and need to be repaired,” plainly indicates that the USFS knows that sediment from activities in the Houston South Project area *will* reach the Lake Monroe water supply. Wearing blinders and pretending as if *this* sediment is somehow different from other sediment in these watersheds is illogical, irrational, and arbitrary.

- 2) Furthermore, if there is research or data indicating that sediment and nutrient pollution from logging and burning operations within the watershed of the South Fork of Salt Creek or any similar eastern hardwood forest environments will settle out of the water column in receiving streams within a certain distance from those operations, the USFS did not provide it or refer to it in this Draft SIR. The Draft SIR discusses Best Management Practices (“BMPs”) used at the Buffalo Pike logging operation on page 23 and illustrates vegetation at the prescribed burn on Fork Ridge on page 14, both activities within the Houston South Project area, yet it provides no data on water quality from these sites thus leaving readers with no idea of the impact on waters draining to Lake Monroe from these activities.

In fact, the Draft SIR does not divulge whether any water quality monitoring has been undertaken at these sites. Nor does the Draft SIR present data from any other logging or prescribed burning sites in the Houston South Project area or anywhere in the Hoosier National Forest that could be used to assess the impacts of such activities on Monroe Reservoir by an examination of actual baseline data. In this way, the Draft SIR fails even the most basic purpose of an agency’s duties under NEPA—i.e., to disclose and analyze the impacts to affected resources (and any existing data to help the agency and the public make well-informed decisions).

- 3) While BMPs do reduce water pollution from logging, well-documented research establishes that BMPs do not eliminate significant runoff and pollution of receiving waters with sediment and nutrients from timber harvests in eastern hardwood forests.

For example, a study of runoff from two clearcuts in the hilly topography of the Robinson Forest in southeastern Kentucky similar to that in the Houston South area illustrates this point.² One clearcut was undertaken with BMPs and the other without. Stream water intercepting runoff from both cuts was compared to stream water in an uncut adjacent watershed. The study’s authors explain:

To compare the effects of BMP implementation on streamwater quality, two of three small watersheds in Kentucky were harvested in 1983 and 1984, one with BMPs, the other without BMPs. There was no effect of clearcutting on stream temperatures. Streamflow increased by 17.8 cm (123 percent) on the BMP watershed during

² Arthur, M.A., G. B. Coltharp, and D. L. Brown, EFFECTS OF BEST MANAGEMENT PRACTICES ON FOREST STREAMWATER QUALITY IN EASTERN KENTUCKY, JOURNAL OF THE AMERICAN WATER RESOURCES ASSOCIATION, VOL. 34, NO.3, AMERICAN WATER RESOURCES ASSOCIATION, JUNE 1998, pages 481-495. A copy of this Study is attached to these comments.

the first 17 months after cutting and by 20.6 cm (138 percent) on the Non-BMP watershed. Water yields remained significantly elevated compared to the uncut watershed 8 years after harvesting. Suspended sediment flux was 14 and 30 times higher on the BMP and Non-BMP Watersheds, respectively, than on the uncut watershed during treatment, and 4 and 6.5 times higher in the 17 months after treatment was complete. Clearcutting resulted in increased concentrations of nitrate, and other nutrients compared to the uncut watershed, and concentrations were highest on the non-BMP watershed.

BMPs utilized in the study included the use of a 50-foot-wide streamside buffer strip, minimization of road-building impacts, installation of water control structures on roads and retirement and seeding of roads, skid trails and landing areas after logging. While these BMPs were adopted in the early 1980s in Kentucky, some of them are equal to if not more protective than the Forest Plan Standards, Guidelines and BMPs described on page 7 and outlined in Appendix A in the Draft SIR. They include the restriction of all roads to grades no more than 10%, requirement to winch logs up to roads to be skidded to log landing areas, and avoidance of repeated skidding on the same road as well as excessive downhill skidding.

The study demonstrates that although concentrations were usually highest in the receiving stream from the watershed cut without BMPs, the fact is that in the 17-month period after the harvests, *statistically significant increases in nutrient concentrations also occurred in the stream draining the BMP-cut watershed compared to concentrations in the stream draining the uncut watershed.* These nutrients included nitrate, potassium, calcium, sodium and magnesium as well as alkalinity. Average nitrate concentrations after the harvests were approximately 4.5 mg/l, **more than 4 times higher** in the receiving stream draining the BMP-cut site than in the stream draining the uncut site (1 mg/L). In fact, nitrate reached 13.5 mg/l exceeding the EPA drinking water standard (10 mg/l) in the receiving stream from the BMP-cut watershed during the 17-month post-harvest period.

Equally notable was the statistically significant increase in sediment flux from the BMP-cut watershed compared to the uncut watershed. This increase was the mass of sediment draining from the BMP-cut watershed as suspended solids in the receiving stream that occurred for nearly two and a half years (29 months) after the logging. The increased sediment flux paralleled the decrease in evapotranspiration of water in the cut watersheds compared to the uncut watershed and resulting increase in stream water quantities exiting the cut watersheds. During the logging, sediment flux levels draining the BMP-cut watershed were **14 times higher** than those draining the uncut watershed. In the 17 months after the cut, sediment flux was **4 times higher** from the BMP-cut watershed than from the uncut watershed. The difference in flux would spike from storms. More than three years after the logging was concluded, a 7.5-centimeter rain event in November 1987 produced a flux of 733 kg/ha of suspended sediment draining the BMP-cut

watershed. This was more than **75 times higher** than the 9.7 kg/ha of sediment flux draining the uncut watershed.

Many nutrients are carried by suspended sediment. The increase in water and sediment exiting the cut watersheds translated into an even more significant mass of nutrients (nutrient concentration times the water flux) draining from the cut watersheds. For example, the mass of nitrate exiting the BMP-cut watershed was 8 times higher than the mass of nitrate exiting the uncut watershed during the 17 months after logging while the nitrate concentration in the streamwater was only four times higher. The export of nitrate from the uncut watershed's stream was comparable to the amount of nitrate entering this watershed from precipitation, whereas the export of nitrate from the BMP-cut watershed was 12.7 times higher than the nitrate entering the BMP-cut watershed from precipitation. The mass of nitrate exiting the BMP-cut watershed increased by 795% more than nitrate exiting the uncut watershed. While their concentrations did not rise as much as nitrate concentrations, the mass of phosphorous exiting the BMP-cut site rose by 136% compared to the uncut site. Potassium rose by 298% and calcium 274% from the BMP-cut watershed compared to the uncut watershed.

The Forest Service asserts, without substantiation, that BMPs "eliminate" the pollution problem. However, this study demonstrates that the mass of nutrients leaving the BMP-cut watershed was nearly as bad as the nutrients leaving the non-BMP-cut watershed during the 17-month period following the logging. In this period, the mass of nitrate leaving the non-BMP-cut watershed was nine times higher than the mass of nitrate leaving the uncut watershed. This compares to the mass of nitrate leaving the BMP-cut watershed being **eight times higher** than that leaving the uncut watershed. In other words, the BMPs only reduce nitrogen loading from logging by roughly 11%. Similarly, the export of nitrate from the non-BMP-cut watershed was 14.5 times higher than the nitrate entering this watershed from precipitation, versus 12.7 times higher for the BMP-cut watershed. The percentage increase in the mass of nitrate exiting the non-BMP-cut watershed over the uncut watershed was 908%. This compares to a 795% increase in nitrate export from the BMP-cut watershed over the uncut watershed.

The fact that water yields in the BMP-cut watershed remained "significantly elevated compared to the uncut watershed for 8 years after harvesting" and were still elevated at the conclusion of the study is also of grave concern. In addition to the sediment running off the clearcut, these increased yields caused streambank erosion, another "major source" of sediment in the receiving stream according to the study. Increased stream flows from the cut watersheds in 1985-1987 correspond to the two-year period after harvests when the sediment flux increase in those streams was statistically significant compared to the sediment flux in the stream draining the uncut watershed. Fourteen years after these cuts were concluded, the study's authors state, "[a]ccelerated streambank erosion is still evident in Watersheds B (cut with the BMPs) and C (cut without the BMPs), likely the result of elevated streamflow's during this period." (emphasis added). The Draft SIR points to bank erosion as a major source of sediment in Lake Monroe and acknowledges that streambank erosion was documented at 86% of observed stream sites in the development of the Lake Monroe Watershed Management Plan but is silent on the potential for increased stream bank erosion from Houston South logging even though

such erosion is a normal impact of timber harvesting operations including harvests like this one undertaken with BMPs.

The results of this study have significant implications for Houston South where multiple clearcutting and other timber harvesting operations including shelterwood, thinning, single tree and group tree selection and midstory removals, and many miles of road building for log transport and skidder traffic, all of which have been documented to cause serious erosion, will be authorized. Much of this cutting, road building, and logging traffic will occur on steep slopes with highly erodible soils according to the USFS's Environmental Assessment for the Houston South Project. Within the 10-12 year Project period, it is likely that several of these cuts along with road building and burning over large tracts in the Project area could occur simultaneously. That will only compound the significant effects in the watershed and ultimately to the water quality of Lake Monroe.

The USFS points to research from sites outside of Indiana, but provides no analysis, scientific or otherwise in the Draft SIR that demonstrates that the BMPs to be utilized in the Houston South Project will stop polluted runoff that will be generated by these activities from reaching Lake Monroe. Saying it won't happen doesn't make it so.

- 4) Potential for increased runoff of sediment and nutrients from prescribed fire is not addressed in the Draft SIR. If it moves forward, the Houston South Project intends to conduct prescribed burns on 13,500 acres several times over a 10-12 year period. These fires are planned on all but approximately 1,000 of the national forest acres within the Project area. The national forest lands to be burned are typically hilly and in many cases on steep slopes with thin soils that are prone to small slides and erosion from tree falls and high precipitation events without any human intervention. By burning off the upper layers of forest groundcover, litter and duff, the Project's prescribed burning could likely expose bare soils and exacerbate this potential for ground sliding, erosion and runoff of sediment and nutrients into streams. These streams flow to the South Fork from the east and the west for approximately 9 miles as this Creek flows from Kurtz on the Project's southern border in a northwestern direction to two miles beyond Maumee on the Project's northern border, which is about 5 miles from where the South Fork enters Lake Monroe.

On page 14, the Draft SIR states, "*Hoosier fire monitoring data shows that prescribed burning has no effect on soil and water resources due to the thick duff layer remaining post burn, preventing soil displacement until the area re-vegetates (which usually occurs in 45 days or less in this project area). Fire effects monitoring has found evidence of ample vegetative regrowth 6 months after prescribed burning. (Riggs and Larson 2007)*" This raises a question of whether revegetation that is important for retarding runoff is occurring in 45 days or less or within 180 days. However, another question is where is this "fire monitoring data" for the Hoosier National Forest? There is no such data presented in the Draft SIR or provided in any of the references cited in this Report.

Furthermore, there are no BMPs for prescribed fire provided or referenced in the Draft SIR and no fire management practices that the Draft SIR commits to such as burning only during certain times of the year or only with low intensity burns. Statements such as, "*Prescribed burning on the Hoosier typically occurs in the cool season, with low*

intensity fires” on page 14 of the Draft SIR are not commitments iterated in the Environmental Assessment or other Project documents that the Project must adhere to. The discussion on page 14 continues: *“This helps lessen the loss of nutrients and reduce the overall level of sediment runoff into streams. Moist riparian areas do not carry fire well, so these would likely remain unburned, even when within the perimeter of a prescribed fire, retaining their filtering capabilities.”* However, burning during the “cool season”, i.e., from November through March when there is more rain and little or no vegetative regrowth can result in more, not less sediment runoff into streams. Furthermore, that runoff could enter ephemeral streams in headwaters, on hillsides and in ravines, and travel by riparian filters to larger intermittent streams into the South Fork of Salt Creek.

Prescribed fire is promoted as a management tool by a large number of land management agencies and research institutions. Yet these agencies do concede that prescribed fire can pose risks, particularly to water quality. For example, the Mississippi Forestry Commission website states that properly planned prescribed burns will generally not harm water quality yet concedes, *“The main effect of prescribed burning on the water resource is the potential for increased rainfall runoff. When surface runoff increases after burning, it may carry suspended soil particles, dissolved inorganic nutrients, and other materials into adjacent streams and lakes reducing water quality. Rainwater leaches minerals out of the ash and into the soil. In sandy soils, leaching may also move minerals through the soil layer into the groundwater.”*³

Furthermore, there is little research documenting the impacts on water quality and soils from repeated prescribed burns across large areas of watersheds on the scale planned in the Houston South Project. This is particularly the case for the central hardwoods region of the eastern US.

A study in the Trail of Tears State Forest in western Union County, Illinois, examined sediment loss between watersheds treated and untreated by prescribed fire.⁴ The research site included five watershed pairs. One watershed in each pair was randomly assigned the prescribed burn treatment and the other remained as control (i.e., unburned). The prescribed burn treatment significantly reduced the forest litter depth with 12.6%–31.5% litter remaining in the prescribed burn treatment watersheds. The authors state that when data were combined across all watersheds, no significant differences were obtained between burn treatment and control watershed for total suspended solids and sediment concentrations or loads. Yet the annual sediment losses varied from 1.41 to 90.54 kg·ha⁻¹·year⁻¹ in the four prescribed burn watersheds and were much smaller and varied only from 0.81 to 2.54 kg·ha⁻¹·year⁻¹ in the four control watersheds. These watersheds were also

³ <https://www.mfc.ms.gov/burning-info/prescribed-burning/prescribed-fire-challenges/#:~:text=The%20main%20effect%20of%20prescribed,and%20lakes%20reducing%20water%20quality>.

⁴ G. Singh, J.E. Schoonover, K.S. Monroe, KW.J. Williard & C.M. Ruffner. Prescribed Burning and Erosion Potential in Mixed Hardwood Forests of Southern Illinois, www.mdpi.com/journal/forests, 7 April 2017,

very small, ranging from 0.148 to 0.512 acres making this study inadequate for drawing conclusions about the prescribe fire planned for thousands of acres at Houston South.

A study of in the Clemson Experimental Forest in South Carolina examined water quality impacts over a six-year period (1976-1982) from three prescribed burns in of watersheds of loblolly pine stands followed by clearcutting.⁵ Three watersheds received this treatment, each paired with a control watershed that did not receive any treatment. The loblolly pines had been planted in 1939 and are being invaded by native hardwoods including oaks. Prescribed burns were used to kill the hardwoods. Harvesting after the third prescribed burn significantly increased sediment concentrations and export from the treated watersheds compared to the untreated ones although the authors state that there was little water quality impact or soil loss. Still, the sediment concentration in receiving waters in the first year after clearcutting was four times higher from the burned and logged watersheds than the untreated watersheds. The soil export (mass of soil leaving) from the burned and cut watersheds was eight times higher than the soil export from the untreated watersheds. Aside from the fact that these stands were of loblolly pine, the small size of the watersheds, from 1.19 to 5.39 acres and the shallow slopes of 10 to 16% in the watersheds also limit the usefulness of this study in projecting impacts that can occur in the much larger prescribed fire planned at Houston South. However, the scenario in this study of logging sites that have been burned and visa versa may be replayed many times at Houston South.

In a study monitoring runoff and sediment load after a prescribed burn in dry eucalypt forest in Victoria, Australia, cumulative sediment loads over 16-months were 100 times higher from burned sites than from unburned sites. Sediment runoff from burned sites approached 1500 g/meter, while unburned sites sediment loads were less than 10 g/meter. Sediment loads over 16-months were approximately three orders of magnitude higher on burnt compared with unburnt hillslopes while differences in runoff and erosion between the low and high severity hillslopes were relatively small. The authors found that unburnt patches were effective at mitigating runoff from from upslope burnt areas, with sediment loads reduced by 99.9% downslope over 16 months when a 10 m wide unburnt patches was placed downslope, and suggest that retaining unburnt patches on lower slopes within prescribed burn can help minimize erosion and protect waterways.⁶

⁵ D.H. Van Lear, J. E. Douglas, S. K. Cox, M. K. Augspurger. Sediment and Nutrient Export in Runoff from Burned and Harvested Pine Watersheds in the South Carolina Piedmont. *Journal of Environmental Quality*, Volume 14, issue 2, April-June 1985, Pages 169-174.

⁶ [J.G.Cawson, G.J.Sheridan, H.G.Smith, and P.N.J.Lane](#), Effects of fire severity and burn patchiness on hillslope-scale surface runoff, erosion and hydrologic connectivity in a prescribed burn. [Forest Ecology and Management. Volume 310](#), 15 December 2013, Pages 219-233

- 5) Sediment decreases the useful life of reservoirs.^{7,8} The Subcommittee on Sedimentation of the US Department of Agriculture’s Advisory Committee on Water Information encourages long-term reservoir sediment-management plans for reservoirs that include either the implementation of sustainable sediment-management practices or eventual retirement of the reservoir. Sustainable reservoir sediment-management practices are “practices that enable continued reservoir function by reducing reservoir sedimentation and/or removing sediments through mechanisms that are functionally, environmentally, and economically feasible. The costs for implementing either sustainable sediment management practices or retirement plans are likely to be substantial, and methods to pay for these activities should also be identified.”⁹

Reducing sediment input into Lake Monroe is a stated priority in the Lake Monroe Watershed Management Plan, a document that the USFS repeatedly professes to support in the Draft SIR. The South Fork of Salt Creek provides approximately 30 percent of the volume of water entering Lake Monroe. High levels of sediment in the South Fork of Salt Creek are a long-established fact. So are the high levels of sediment run off that have been documented to occur from activities such as timber harvests, prescribed fire and the road building to accommodate these activities that are proposed throughout national forest lands in the Houston South Project on steep ground with highly erodible soils. Yet there is no discussion in the Draft SIR that quantifies (or even attempts to estimate) incremental sediment loads or concentrations that will flow into the South Fork of Salt Creek and reach Lake Monroe as a result of the Houston South Project. With high levels of sediment and nutrients causing taste, odor and algae problems in Lake Monroe, the Draft SIR must provide a well-founded estimate of the additional loads of sediment and nutrients that will be released by the Houston South Project into the watershed of the South Fork of Salt Creek. Lacking any estimate, readers of the Draft SIR are left without the ability to assess its assertions that the impact of the project on sediment loads in Monroe Reservoir will be insignificant.

- 6) Pursuant to CWA 40 C.F.R. § 131.12 - Antidegradation policy and implementation methods, the USFS must demonstrate that the actions in the Houston South Vegetation Management and Restoration Project will not add to any existing impairments. The Draft SIR has failed to make any such demonstration.

Monroe Reservoir is listed on the 2018 Impaired Waters List as impaired for Taste and Odor, Algae, and Mercury in fish tissues. The 2018 303(d) list also includes impairments of Lake Monroe tributaries including E. coli in Little Salt Creek and Low Dissolved Oxygen and Low Biological Integrity in the South Fork of Salt Creek. In 2022, Monroe Reservoir is again listed for Impairments including Taste and Odor and Algae.¹⁰ Taste

⁷ https://acwi.gov/acwi-minutes/acwi2017/Presentations/04c_reservoir_sedimentation_and_sustainability_faqs.pdf

⁸ <http://reservoirsedimentation.com/assets/downloads/Morris-2020-Classification-of-Management-Alternatives.pdf>

⁹ <https://acwi.gov/sos/index.html>

¹⁰ <https://www.in.gov/idem/nps/watershed-assessment/water-quality-assessments-and-reporting/section-303d-list-of-impaired-waters/>

and odor are directly related to algae levels, and algae growth is related to phosphorus levels and the phosphorus/nitrogen ratio.¹¹ In addition to taste and odor, harmful algae blooms can interfere with recreational uses and reduce oxygen levels. The South Fork of Salt Creek is listed as impaired for dissolved oxygen and biological integrity, both closely related to nutrient and sediment loads. Excessive algae growth from nutrients like nitrogen and phosphorus is the main cause of low DO levels.¹² Biological integrity is an index based on the numbers and types of fish and macroinvertebrates present compared with those at a similar “reference” site with minimal human impact. Low scores generally indicate low dissolved oxygen or excess nutrient or sediment inputs or the presence of toxic substances.^{13, 14}

The Lake Monroe Watershed Management Plan lists sediment and nutrient loading as major concerns of stakeholders. The watershed management planning process also included data collection that further demonstrated water quality impairments in the project area. For example, the data demonstrate impairment for high levels of phosphorus in Tipton Creek and high levels of nitrogen in Little Salt Creek and Tipton Creek.¹⁵ Both of these streams are in the watershed of the South Fork of Salt Creek.

As previously stated, reducing sediment and nutrient loads to Lake Monroe are stated goals of the watershed management plan.¹⁶ The plan calculates how much phosphorus reduction is needed to avoid eutrophic conditions. For example, Jones found current loading rates to be 1.07 grams/square meter-year and estimates that a 72% reduction in phosphorus loading is needed to achieve the target in-lake phosphorus concentration of 0.020 mg/L.¹⁷ In the final analysis, the STEPL Model was used to establish current loads and needed reductions for phosphorus, nitrogen and sediment because it correlated reasonably well with the Jones study and is easy to replicate. The watershed management plan articulates goals for reduction of 74,098 lbs per year of phosphorus, 80,204 lbs per year of nitrogen, and 9,992 tons per year of sediment.¹⁸

¹¹ <https://friendsoflakemonroe.org/wp-content/uploads/2022/03/lake-monroe-wmp-2022-02-23-complete-report-s.pdf>

¹² <https://atlas-scientific.com/blog/causes-of-low-dissolved-oxygen-in-water/>

¹³ <https://www.inwmc.net/resources/water-resource-issues/biological-integrity/>

¹⁴ <http://monitoringprotocols.pbworks.com/f/IDEM+sum+of+protocols.pdf>

¹⁵ <https://friendsoflakemonroe.org/wp-content/uploads/2022/03/lake-monroe-wmp-2022-02-23-complete-report-s.pdf> page 105-107

¹⁶ *ibid* page 146

¹⁷ *ibid* page 144

¹⁸ *ibid.* page 145

Needed Load Reductions Identified in Lake Monroe Watershed Management Plan

See pg. 145 of Lake Monroe Watershed Management Plan

	Phosphorus Load (lbs/year)	Nitrogen Load (lbs/year)	Sediment Load (tons/year)
Current Load	93,201	404,597	24,083
Target Load	19,103	343,853	14,327
Needed Reduction	74,098	80,204	9,992

Even if the Houston South Management uses BMPs perfectly, (which never occurs in practice), there will still be negative water quality impacts from its activities, a fact that the Draft SIR does not examine. Likewise, the Draft SIR does not examine or discuss how these additional water quality impacts will undermine the Clean Water Act's antidegradation policies and make it more difficult to accomplish the objectives of the Lake Monroe Watershed Management Plan. If the USFS is genuinely supportive of the Lake Monroe Watershed Management Plan's goals, the Draft SIR would provide credible estimates of the additions in pounds and tons per year of these parameters that Houston South project activities would contribute (or remove from) these current loads.

- 7) The SIR does not provide clear and effective corrective action standards that will be utilized in the Houston South Project to prevent sediment and nutrient polluted runoff from the project's substantial logging, burning and road-building activities from entering Monroe Reservoir and worsening its impaired condition.

Monitoring is necessary to enforce corrective action standards. For water quality, the Draft SIR explains on pages 18 & 19 that streams will be monitored for discharge and turbidity at only four locations spread over the entire 23-square-mile project area. Turbidity is a very broad parameter that measures cloudiness which can be almost any material in water and is less precise than suspended solids would be in providing a numeric threshold for corrective action. Table 1 on page 19 provides data from grab samples taken from these locations over just one calendar quarter, from March to June of 2019. This data is characterized as "background" turbidity and discharge levels at these four locations. We have difficulty believing that 6-8 grab samples taken over a three-month period adequately characterizes the background turbidity and discharge levels in these streams *throughout the year*. Turbidity varies widely in the grab samples taken from these locations and would appear to be dramatically affected by precipitation events during those months. For example, in May, turbidity levels at the monitoring location on

the Callahan Branch measured 1.55 turbidity units. The stream's discharge was 1.28 cubic feet per second. In June, turbidity at this location jumped to 84.1 turbidity units and discharge was 25.6 cubic feet per second. Yet earlier in April, turbidity was substantially less at 19.6 units and despite the stream's discharge being 64.3 cubic feet per second. It would seem that more baseline monitoring could help explain fluctuations occurring naturally or from human activities and establish a more credible baseline prior to project activities that affect these points.

Nevertheless, on page 19, the Draft SIR provides the only discussion in the document that can be inferred to be about a corrective action standard for water quality. It states, “[i]f turbidity levels are monitored higher than control background information, further investigation, remediation, and monitoring would be deployed to ensure BMPs are effective within the project boundary.”

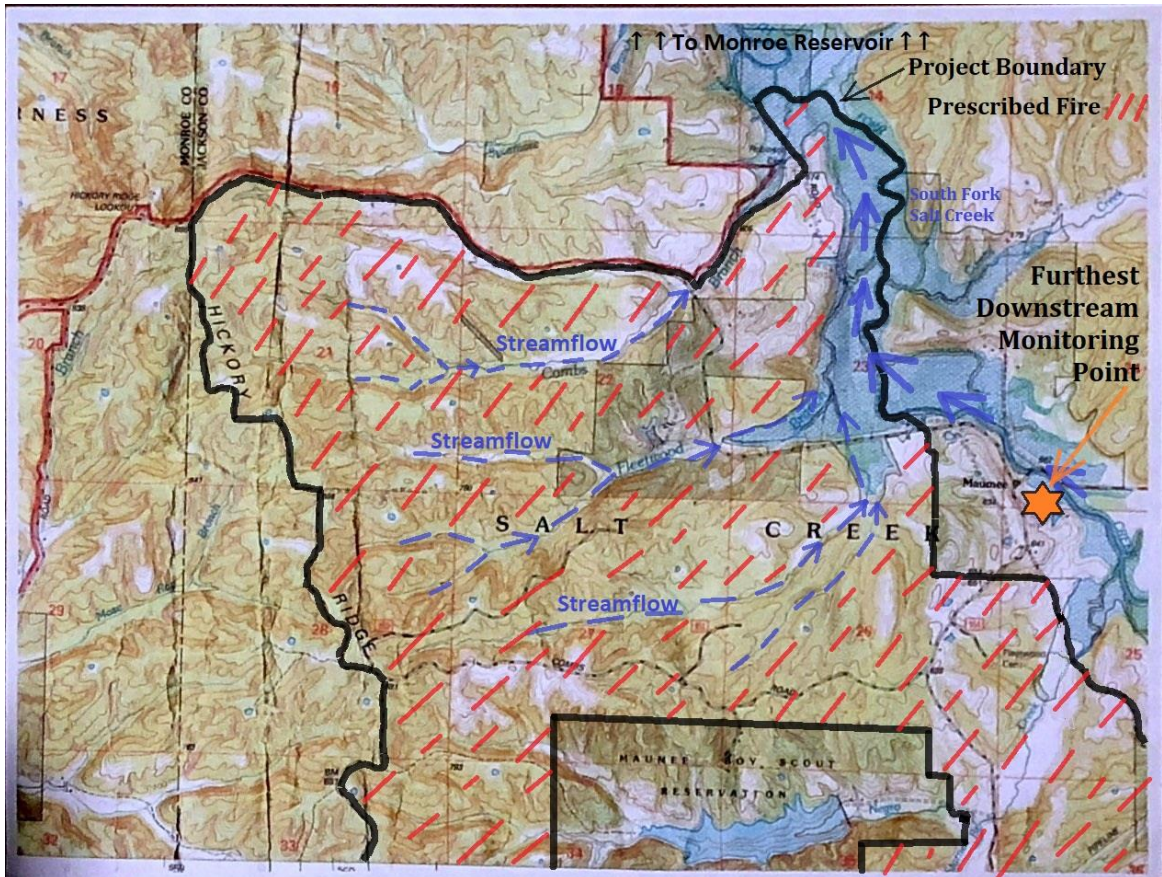
What does this mean? Is the corrective action standard the average turbidity taken at these monitoring points? the highest turbidity? the median turbidity? Will there be a statistical analysis required to determine if the background level of turbidity has been exceeded? What if higher turbidity is measured at a different time of year. Does the corrective action threshold pair these background turbidity measurements to discharge levels. Are these measurements from March through June setting the threshold for corrective action throughout the year? Will there be upstream/downstream comparisons involved in the monitoring program? If, for example, turbidity levels at the most downstream monitoring location, the South Fork of Salt Creek at Maumee, exceed the highest turbidity from the 2019 background measurements at that location, but turbidity measurements in the South Fork of Salt Creek at Kurtz, upstream from all project activities, are also exceeding their highest background levels, will a threshold for corrective action be triggered?

Furthermore, what happens if further investigation finds that serious erosion and pollution is occurring from logging, burning, road building or other activities. Are the activities to be halted until BMPs become effective? What does effective mean in this context? Will other parameters such as suspended solids and nutrients be measured to gain a better understanding of what is included in the high turbidity? Where will they be measured? How long after project activities will the monitoring program extend to? Substantially more explanation is needed to instill confidence that project activities affecting water quality will be ascertained and corrected before increased sediment and nutrients from the activities reaches Monroe Reservoir.

The other form of corrective action discussed in the Draft SIR concerns “Expanded Soil Disturbance Monitoring” discussed on page 17. If “detrimental disturbance” of soil occurs over more than 15% of an activity area such as a timber harvest, remedial actions must be taken. What those actions are is not explained. What is clear, however, is that this standard is enforced by comparing pre-activity soil conditions to post-activity soil conditions. Thus, the standard will allow considerable damage to occur which is then mitigated after the logging, burning or road building has been completed, hardly a prescription for avoiding environmental damage from an activity.

- 8) In addition, the Draft SIR fails to acknowledge a fundamental deficiency in the water quality monitoring proposed for the Houston South Project. None of the four water quality monitoring sites that will be used by the Houston South Project as discussed and shown in Figure 10 on page 18 are located in a position to monitor the runoff from prescribed burns to be carried out on approximately two thousand acres of national forest land in the northwest corner of the Project. Virtually all of this land is sloping, much of it on steep slopes. Runoff from these slopes drains to the Fleetwood Branch and the Combs Branch, both larger intermittent streams that enter the South Fork of Salt Creek downstream from Maumee Bridge, the furthest downstream monitoring point in the Houston South Project. Prescribed burning is an activity designed to release nutrients. The SIR acknowledges that prescribed burning can cause nutrient and sediment runoff if BMPs are not effective on page 17. Yet the runoff from the prescribed burning undertaken 2-3 times on approximately four-square miles of hilly national forest land in this Project north of the Maumee Boy Scout Reservation will not even be monitored allowing significant levels of suspended sediment and nutrients from that activity to reach the South Fork of Salt Creek and Monroe Reservoir without the USFS becoming cognizant of the need to take any corrective action.

This gap in monitoring water quality impacts from prescribed burning planned for the Houston South Project is shown in the illustration below which was drawn on the USGS Map for the Elkinsville Indiana Quadrangle (1993).



- 9) In light of the many analytical deficiencies described above, the USFS has not made a convincing case (or any case at all) for its finding of no significant impact from the Houston South Project to Lake Monroe (let alone other Project impacts). As a result, the USFS's refusal—for the second time—to prepare an EIS for this massive Project involving logging, burning, and other activities over a broader swath of the Hoosier National Forest than ever before proposed, is arbitrary, capricious, and in violation of NEPA.

Accordingly, we request that the USFS prepare an Environmental Impact Statement to adequately examine the environmental impacts of the Houston South Vegetation Management and Restoration Project on Monroe Reservoir and alternatives that would have less significant adverse impacts if not positive impacts on this water supply for 120,000 people as required by the National Environmental Policy Act. We believe the development of an EIS comports with the March 30, 2022 Order of the U.S. District Court for the Southern District of Indiana to take a much closer, "hard look" at the environmental impacts of the Houston South Project on Lake Monroe and to present the results of this examination to the US District Court and the public.

Respectfully,

A handwritten signature in black ink, appearing to read 'Jeff Stant', with a long horizontal line extending to the right.

Jeff Stant
Executive Director
Indiana Forest Alliance
615 N. Alabama Street, Suite A
Indianapolis, IN 46204

Attachment: Kentucky Study on Effectiveness of Timber Harvest BMPs